NOTES ON THE DISTRIBUTION AND BIOLOGY OF SOME HESPERIIDAE AND LYCAENIDAE (LEPIDOPTERA) IN VICTORIA

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Abstract

New distribution records are given for three species of Hesperiidae and six species of Lycaenidae in Victoria. Comments are made on the biology of *Anisynta cynone* (Hewitson), *Acrodipsas brisbanensis* (Miskin), *Ogyris genoveva* Hewitson and *Theclinesthes albocincta* (Waterhouse). *Oryzopsis miliacea* and *Acacia deanei* are newly recorded as larval host plants for *A. cynone* and *Jalmenus icilius* Hewitson respectively. *A. brisbanensis* is rediscovered from the Melbourne region, having not been collected from this area for over 70 years.

Introduction

The following records provide range extensions and confirmation of historical localities in Victoria for a number of poorly known butterfly species of Hesperiidae and Lycaenidae. Most records are based on an intensive series of observations and collections between 1987 and 1990 from the little explored Wimmera and Mallee of the north west region (Fig. 1), although some details made from the western region and near Melbourne are also included. New information on the general biology of several species is given, and for some taxa qualitative comments are made on the subspecific status. Much of the natural habitat of north-western Victoria has been severely reduced in extent and many of the species detailed here are now very rare. Survey effort focused largely on Buprestidae (Coleoptera) and Castniidae (Lepidoptera) (Douglas unpubl.), and towards re-establishing the presence of the two lycaenids, *Ogyris otanes* C. and R. Felder and *O. idmo halmaturia* Tepper, both of which have not been taken from the state for more than 20 years. [The latter species was last collected in 1945 at Kiata in western Victoria prior to the loss of its habitat (Quick 1972)]. Both *Ogyris* species were not collected during our study. Nomenclature follows that of Common and Waterhouse (1981) and Atkins (1984). Voucher specimens are lodged in the Museum of Victoria, Melbourne.

HESPERIIDAE

Anisynta cynone (Hewitson)

The only Victorian localities from which this rare species is recorded are Kerang and Gunbower near the Murray River in the central north for the subspecies *A. c. grisea* Waterhouse (Common and Waterhouse 1981). The Kerang specimens were taken from late March to early April by R.E. Trebilcock between 1924-1953 (specimens lodged in the Museum of Victoria). It has subsequently been taken at this locality by few collectors and the population in this area appears in decline (D.F. Crosby, *pers. comm.*). In March 1987 a localised population was discovered at Rainbow,

170 km W of Kerang, and in 1989 and 1990 three more populations were found: two further south at Nhill and Dimboola, in the western district, and one at Beulah 40 km E of Rainbow. At all locations larvae were recorded on the introduced grass *Oryzopsis miliacea* (L.) Benth. & J.D. Hook. ex Asch. & Schweinf. At Rainbow, in each of the four years 1987-1990, adults were on the wing for approximately five weeks from early March (earliest record 1♂ 5.iii.1990) to mid April (latest record 1♂ 14.iv.1988) with an apparent peak during mid to late March. Subspecific status of all populations from these newly recorded localities has proved difficult to determine. Specimens are variable in the number and extent of postmedial spots of the forewing, and could be placed with either *A. c. grisea* Waterhouse or *A. c. gracilis* (Tepper) from South Australia. Differences between these two subspecies appear very minor (Common and Waterhouse 1981) and the new localities lie almost mid way between their known geographic distributions. The distribution now appears relatively continuous and they probably do not warrant recognition as subspecies.

Anisynta monticolae (Olliff)
Six males were collected from a hilltop in the Black Range State Park on 24 February 1990 at 400 m. The species has generally been recorded in montane areas above 600 m in south-eastern Australia (Common and Waterhouse 1981) with an apparently disjunct population in the Grampians of western Victoria. The Black Range locality extends the known distribution further west by 30 km from the Grampians.

Antipodia atralba atralba (Tepper)
This species is considered rare in Victoria, at present known only from two restricted localities at Hattah and in the Big Desert Wilderness (Crosby 1972, 1974; Atkins 1984). A third colony was located on 16.xi.1989 in the south-eastern corner of the Big Desert, approximately 20 km WSW of Rainbow and some 60 km SE of the known Big Desert colony. Adults were recorded during November in both 1989 and 1990 in a restricted area which supported a dense stand of the larval host plant *Gahnia lanigera* (R.Br.) Benth. A pupa collected on 9.iii.1990 yielded a male 17 days later.

LYCAENIDAE
Lucia limbaria Swainson
Adults were collected on three occasions at Rainbow (1♂ 28.i.1988, 1♀ 29.i.1988, 1♂ 22.ii.1988) and taken at Nhill in early November 1990. A male was also taken at Winium, 11 km S of Nhill on 10.xii.1987. Despite the widespread distribution given by Common and Waterhouse (1981) few localities of this species are known from the Wimmera or Mallee. K.V. Hateley (pers. comm.) noted it very sparingly at Kiata during 1960-1980, but otherwise there are no other recent records since the very 'old' records published by Waterhouse and Lyell (1914). Adults were very mobile and populations appeared to be transitory. Waterhouse and Lyell (1914) noted

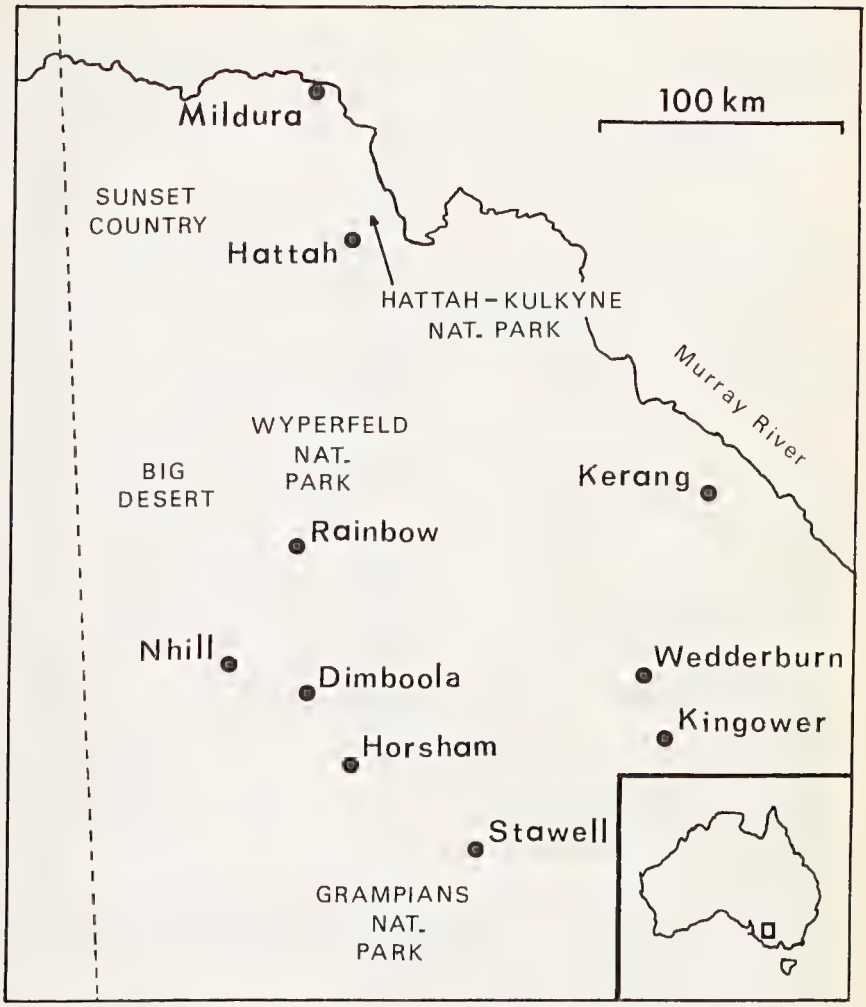

Fig. 1. Map of study area in north-western Victoria and localities referred to in text.

that *L. limbaria* was irregular in its appearance, and this aspect of its biology may partly explain the paucity of records.

Acrodipsas brisbanensis (Miskin)

This species has been taken in only a limited number of areas in Victoria, including near Genoa (Hunting 1980, 1986) and from the You Yangs and Broadford in the central region (Field 1978; Atkins 1978). The only other records are from Springvale and Cranbourne in the outer south-eastern suburbs of Melbourne (see Anderson and Spry 1897; Waterhouse and Lyell 1914; Waterhouse 1932; Field 1978). Most of these records fall within the

months of December and January, although Waterhouse and Lyell (1914) and Hunting (1986) recorded adults in February. We now have specimens from two additional localities. A series was taken on a hilltop at Kangaroo Ground about 25 km NE of Melbourne (Table 1) and a female was netted near Wedderburn in the central north west on 17.i.1989. We also observed a male flying around flowering *Bursaria spinosa* Cav. at Eltham on 5.i.1988. On 17.i.1988 a female was observed ovipositing on a small dead eucalypt stump infested with a colony of the ant *Iridomyrmex* sp. (*nitidus* group) at Warrandyte North (near Kangaroo Ground); five eggs were deposited in cracks on the trunk close to the ant byre. At Kangaroo Ground the flight period was from early November to early March; adults were actively hill-topping from late morning to late afternoon, and most captures were on days which were warm to hot, sunny and cloudless with no wind - conditions similar to that noted by Field (1978) and Hunting (1986). An exception to this pattern was the female from Wedderburn which, like two of the females at Kangaroo Ground, was taken during very hot and overcast conditions, but a very strong northerly wind prevailed. We have not been able to identify our specimens to subspecies due to the extent of variation. Some specimens have the postmedian band of the forewing underside distinctly displaced at vein M_3, in others it is completely missing, while in some it forms a more or less continuous series of spots. Such variability in the spots and bands beneath the wings casts further doubt on the validity of the subspecies *A. b. cyrilus* as expressed by Field (1978), Common and Waterhouse (1981) and Hunting (1986). It is noteworthy that the species had not been taken in the Melbourne area for a considerable period prior to the capture of the first specimen at Kangaroo Ground by T. Brain in 1981. The Cranbourne and Springvale specimens were collected at the turn of the century: in December 1896 (Anderson and Spry 1897) and December 1907 (Field 1978) respectively. The only previous record of the early stages of *A. brisbanensis* was a comment by Waterhouse (1932) who noted that "several smooth pupae were found in ant tunnels at Cranbourne", otherwise the life history is unknown. The Warrandyte North site was cleared for residential housing in early 1988. Scant evidence from the ovipositing female, however, suggests the species is possibly myrmecophagous, as is known to occur in three other *Acrodipsas* species (McCubbin 1971; Gooding 1972; Sampson 1989).

Ogyris genoveva Hewitson

In Victoria this species is apparently becoming rare. It has been recorded from the central and western regions of the state with Dimboola (Lyell 1905; Waterhouse and Lyell 1908, 1914) and Pimpinio [near Horsham] (K.V. Hateley, pers. comm.) being the most northerly localities in the western district. It has only rarely been found in the north west at Hattah Lakes (Morton 1971; Crosby 1974) and Mildura (Common and Waterhouse 1981), some 200 km farther north. We have now taken the species from two new intervening localities, the Big Desert near Rainbow and Lake

Table 1. Observations and captures of *Acrodipsas brisbanensis* at Kangaroo Ground, Victoria. Times of capture or observation are to the nearest 5 min., E.S.T. Obs = observation, Coll = specimen collected. Observer 1. T. Brain, 2. M.F. Braby, 3. F. Douglas & M.F. Braby.

Obs/Coll	Date	Time of obs/coll	Weather
1♂ coll.[1]	1.xi.1981	1100	hot, sunny, no cloud, no wind
1♀ coll.[2]	23.xi.1982	1645	very hot, mostly cloudy, slight wind
1♂ coll.[2]	13.xii.1987	1100	warm, sunny, no cloud, no wind
1♂ coll.[3]	5.i.1988	1135	warm, sunny, no cloud, no wind
1♂ coll.[2]	24.i.1987	1130	hot, mostly sunny, no wind
1♀ coll.[2]	2.ii.1987	1700	very hot, mostly cloudy, no wind
1♀ coll.[2]	6.ii.1987	1640	hot, sunny, no cloud, no wind
1♂ coll.[2]	13.ii.1987	1615	hot, sunny, no cloud, no wind
1♂ coll.[2] & 1♂ obs.	17.ii.1987	1355	hot, sunny, no cloud, no wind
1♂ coll.[2] & 1♂ obs.	26.ii.1987	1640	warm, sunny, no cloud, no wind
1♂ obs. [2]	4.iii.1987	1610	warm, mostly cloudy, no wind

Albacutya (20 km N of Rainbow), although there is an unconfirmed record for Birchip (Lyell 1905). At both localities, colonies were associated with the host plant *Amyema miquelii* (Lehm.ex Miq.) Tieghem parasitising *Eucalyptus leucoxylon* F. Muell. A male was also observed hill-topping at Hattah-Kulkyne National Park on 27.x.1988. Populations in the central and western region (i.e. ssp. *araxes* Waterhouse and Lyell) are considered to be univoltine, with adults flying from November to December (Common and Waterhouse 1981). Observations made during 1987-1990 near Rainbow, however, indicated that colonies were bivoltine with adults flying from early November to early December and again from late February to mid April. During the cooler months of May to August larvae remained quiescent in the attendant ants nest, *Camponotus* sp., sheltering under loose bark at the base of the host tree. Subspecific determination of these newly recorded populations has not been possible due to the extent of variation, particularly in females in which the basal areas of both wings varied from bright blue to bluish green. In this respect many specimens could be

placed with the inland *O. g. duaringa* Bethune-Baker but males from the same population varied from rich dark violet-purple to pale dull purple on the wings above. The presence of *O. genoveva* in the Big Desert is an addition to the list of 23 species recorded for this area (Braby 1987).

Ogyris olane Hewitson

Although this species has an extensive distribution throughout the state, the only positive record from the north west is that of Crosby (1974) who identified specimens from Hattah Lakes in the collection of G. Anderson (D.F. Crosby, *pers. comm.*). On 27.x.1988 three males were taken near Mildura, 65 km NNW of Hattah Lakes, and a fourth male was bred from a larva taken from *Eucalyptus largiflorens* F. Muell. supporting the host plant *A. miquelii*. A female was also collected on the Chalka Creek, Murray-Kulkyne State Park (near Hattah-Kulkyne National Park) on 3.x.1990. There appears to be a large disjunction in range of some 250 km between the Hattah Lakes-Mildura localities and populations farther south at Kingower, Mt Kooyoora, Stawell and Mt Arapiles (*pers. obs.*): Waterhouse and Lyell (1914) and Common and Waterhouse (1981) also listed Dimboola and Inglewood respectively. Specimens from all localities varied in the extent and richness of colour in the wings above and could not be assigned to subspecies. Those from Mildura were of a much duller, suffused purple than material taken from farther south near Stawell, for example, which were considerably brighter purple above. The female from the Chalka Creek, however, was bluish above rather than purple, more typical of *O. o. olane* from inland New South Wales. Common and Waterhouse (1981) showed an ill-defined demarcation between the distributions of the two currently recognised subspecies in areas north of the Great Dividing Range and pointed out that "the distinction between the two subspecies is probably not well defined"; the variation may in fact be clinal.

Jalmenus icilius Hewitson

This species has been recorded only from several areas within the state and is rare. In recent years it has been taken only from the western district at Wartook in the Grampians (Atkins 1976). On 16.xii.1990 a small colony was located in the Kooyoora State Park, near Kingower, in the central north. Larvae were noted feeding on *Acacia deanei* (R. Baker) Welch et al.

Theclinesthes albocincta (Waterhouse)

Very few specimens of this localised species have been taken from inland areas in Australia. The only recorded localities in Victoria are from three restricted areas in the north west at Wyperfeld National Park, Lake Albacutya and the Sunset Country (22 km N of Linga) (Sibatani and Grund 1978). In October 1987 the species was found breeding in relatively large numbers at Wyperfeld National Park, 36 km N of Rainbow, on *Adriana hookeri* (F. Muell.) Muell., a larval host plant previously recorded only from the Sunset Country. Subsequently, two smaller colonies were found

breeding on *A. hookeri* at Lake Hindmarsh, 50 km SSW of Wyperfeld, and at O'Sullivan Lookout at the northern edge of Wyperfeld National Park. Observations and collections at Wyperfeld during 1987-1990 indicated that the species bred continuously over an extended period, with adults flying from late August to mid May. Eggs were deposited singly on young shoots, or on flower buds when available. Larvae fed during the day, mainly on the upper side of leaves of *A. hookeri*, but sometimes on flower buds, flowers and young fruits when these were present. Three different ant species, *Iridomyrmex* spp. and *Dolichoderus* sp., were found attending larvae. Pupation usually occurred in curled dead leaves on the ground near the base of the plant. In contrast to the findings by Grund and Sibatani (1975) who reported pronounced larval colour polymorphism in South Australia, only two colour forms (types 1 and 4) were present, the brownish and pinkish types being absent from the colonies in north west Victoria. Seasonal variation in adult form was evident with distinctive 'cool' and 'warm' season forms. In general, a dark form persisted from late April to mid May and again from late August to mid October. Adults taken in during these periods were dark brownish-grey above with extensive basal areas of greyish-blue, the wing undersides were sharply contrasted by greyish-white markings against a dark background of grey-brown. However, in the warmer months (October to April) a much paler form was evident in which the wings were a very uniform light grey-brown above with no basal suffusion of blue, and the white markings beneath were substantially reduced against a ground colour of light brown. The seasonal variation was not as pronounced as that recorded for populations from coastal South Australia (Sibatani and Grund 1978), in which males are considerably more blue above in both the summer and winter forms than specimens from Wyperfeld. Further studies are needed to establish if the inland populations currently assigned to *T. albocincta* represent a distinct taxon. The colonies at Lake Hindmarsh and O'Sullivan Lookout were regrettably destroyed in 1990 by habitat clearing, and sheep and rabit grazing respectively. The site at the southern end of Wyperfeld National Park, however, is now fenced, to reduce the impact of rabits grazing and destroying the larval host plants, and managed by the Department of Conservation and Environment.

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